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(54) Title: HETERODYNE OPTICAL SPECTRUM ANALYZER

(57) Abstract: A heterodyne optical signal analyzer (HOSA) permits accurate reconstruction of an optical input signal in the time domain. In one embodiment, a vector representation of the light is used to account for two polarization states of the optical signal. The components of a heterodyne optical signal analyzer, including optical couplers, all have errors and offsets. For example, optical power detectors are very sensitive to changes in polarization of the optical signal and of the reference signal. Several HOSA calibration procedures including detector calibration, vector calibration, and reference signal calibration are described.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/21337

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01B 9/02
US CL : 356/487, 453

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 356/487, 453, 484, 451, 454

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 4,817,101 A (WYETH et al) 28 March 1989 (28.03.1989), see entire document | 1-47 |
| A,P | US 6,587,214 B1 (MUNKS) 01 July 2003 (01.07.2003), see entire document | 1-47 |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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INTERNATIONAL SEARCH REPORT

PCT/US03/21337

Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms: interfer, interfere, interfering, interference, interferometer, interferometric, interferometrically, couple, coupler, coupling, power, phasor, mix, mixer, mixing, heterodyn, heterodyne, heterodyning